NIR-10 Addendum for Rev. 3.0 Software

Page Reference	Change
Page 1	NOTCH FILTER MODE - Next to last sentence should read: The NF mode is disabled by placing the BW switch in the NARROW (lower) position.
Page 2	Insert: PEAK MODE - The peak mode is useful for reducing white or pink noise (and some similar types of noise) from audio. It can be used alone or in conjunction with the Noise and Interference Reduction (NIR) mode. Peak mode provides dynamic peaking around all coherent signals, voice, or otherwise. This, in essence, provides a second means of noise reduction by automatically reducing the effective audio bandwidth to the minimum required to pass the information. The effective bandwidth constantly varies based on the audio signal present. With CW signals, all tones existing in the audio passband are peaked, so if a CW signal can be isloated with the receiver filter, it can be further peaked and noise-reduced using the PEAK function. The PEAK mode is made operational in either BYPASS or NIR modes by placing the BW switch in the MED (center) position. The PEAK function is disabled by placing the BW switch in the NARROW (lower) position. So the PEAK mode may be used by itself (MODE in BYPASS) or along with the NIR mode. In some cases, the PEAK function will be most effective; or the NIR mode will best remove the unwanted interference; and there will be occasions where the PEAK and NIR modes together are required to eliminate the noise satisfactorily. The PEAK mode does not operate in the BANDPASS filter mode.

Page Reference	Change
	NOTE When using the PEAK function on weak signals, the output level MAY decrease. So it may be necessary to increase the audio input from the receiver to obtain an adequate listening level. Observe the PEAK LED to be sure that the NIR-10 is not being overdriven. There may also be times when the PEAK function will be most effective at reduction of the noise by reducing the audio input from the receiver and increasing the NIR VOLUME to restore the proper listening level. CONNECT POWER - Change the third sentence to : Although the electronics are protected for reverse polarity, damage to the printed circuit tracks may result if the correct polarity is not observed. If you solder on your own power plug, be sure to check for the correct polarity - center terminal is positive.
Page 4	Add after BANDPASS MODE: NOTCH MODE - Place the MODE switch in BYPASS position. Tune in a strong tone or heterodyne. Place the BW switch all the way up to WIDE/NF. This engages the NOTCH filter. The carrier should disappear. PEAK MODE - Now place the BW switch in the middle MED/PK position. This engages the PEAK filter. The tone should now be peaked and the surrounding noise suppressed. Check this function with voice signals to get familiar with its noise reducing capabilities. Also try the PEAK and NIR modes combined for noise reduction.

Page Reference	Change
	Remember that the degree of cancellation of noise in the NIR mode is continually adjustable with the NIR LEVEL control.
Page 10	BW SWITCH - Change paragraph to read: This switch sets the filter bandwidth only in BANDPASS mode. It has no effect on audio bandwidth in BYPASS or NIR modes. In BYPASS or NIR modes, this switch is used to engage the NOTCH or PEAK functions. The middle position of the switch (MED/PK) engages the PEAK function, while the upper position of the switch (WIDE/NF) engages the NOTCH filter. To turn off both functions, place this switch in the lower (NARROW) position. After NIR/NF on VOICE insert: PEAK MODE on VOICE - The PEAK mode is designed to peak up any correlated information in the audio passband. It provides a second type of noise reduction by dynamically forming bandpass filters around correlated information, thus automatically reducing the bandwidth to the minimum necessary to pass the information. The PEAK mode is most effective on purely random noise, such as white or pink noise. When more periodic noise types are encountered, such as ignition noise or power line noise, the NIR mode or a combination of NIR and PEAK modes may be more effective.
Page 12	With the MODE switch in BYPASS, set the BW switch to the NARROW (lower) position. This effectively bypasses the unit except

Page Reference	Change
	for the internal speaker driver. Now tune in a noisy sideband signal. Place the BW switch in the middle (MED/PK) position to enable the PEAK mode and notice the reduction in the noise level. If desired, the NIR mode may also be enabled and used in conjunction with the PEAK mode to provide additional noise reduction. NIR MODE on CW - After the fourth sentence, insert: The PEAK function may be used along with the NIR mode to reduce noise and enhance the CW signal. After NIR MODE on RTTY, SSTV, PACKET, etc., insert: PEAK MODE on CW/DATA. The PEAK mode is also quite useful on non-voice audio, such as CW, RTTY, AMTOR, etc. Note that when using the PEAK mode with CW signals, all tones existing in the audio passband are peaked, so if a signal can be separated with the receiver filter, it can be further peaked and noise-reduced using the PEAK function.
Page 16	SPECIFICATIONS add: PEAK Mode White Noise Reduction Typically 10 to 20 dB

NIR-10

Software Revision 4.0

The version 4.0 software upgrade for the NIR-10 contains the following enhancements:

1. Auto-NIR mode. As in previous versions of the software, the NIR level is adjustable using the control on the front panel. Version 4.0 adds a new option in which an automatic NIR level setting may be selected by rotating the NIR level control fully clockwise. In this AUTO mode, the NIR level is automatically adjusted based on the signal-to-noise ratio of the incoming signal. This is useful for situations where a wide variety of signal strengths may be encountered, such as nets or contest operation. In AUTO mode the software will always attempt to set the optimum amount of noise reduction for the signal being received.

2. Adjustable PEAK mode. Normally the PEAK mode has a fixed amount of noise reduction. With Version 4.0 the NIR level control may be used to adjust the amount of noise reduction in the PEAK mode, *provided the NIR mode is not being used at the same time*. If PEAK is used in conjunction with the NIR mode, then the control adjusts the NIR level and the PEAK mode is fixed as in previous software versions. When using the NIR level control to adjust the PEAK mode, note that there will be some noise reduction present even with the control fully counter-clockwise. This is a normal effect of the PEAK mode algorithm.

3. Enhanced NIR mode. The algorithm for the NIR mode has been enhanced, providing better noise reduction and less residual noise, especially on weak signals. This enhancement is a part of the Version 4.0 upgrade and requires no change in the way the unit is operated.

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NIR-10

Installation Instructions:

To replace the PROMs in your unit with the new ones contained herein, disconnect the power cable and remove the NIR-10 top cover. Use a small screwdriver or other small flat-blade tool to CAREFULLY remove the present PROMs (U9 and U10) from their sockets. Be sure to get between the IC and its socket, NOT beneath the socket! Set them to one side. Remove the new PROMs from their plastic shipping case and note the location of the keying indentation on the PROMs. Very CAREFULLY insert the new PROMs in their sockets, observing the U number (i.e., U9 to the left and U10 in the right hand socket), with the keying indentation toward the NIR-10 rear panel. Make sure ALL IC pins are engaged in the socket before seating each PROM, then gently push the PROM into its socket.

To test the unit, reconnect the power cable and turn the unit on, observing the red LED. This LED should flash three times, indicating a successful self-test sequence. If the LED comes on and stays on, or operates other than described above, turn off the power and check the seating of the PROMs. Check to be sure that you did not bend a lead over when you inserted the PROM in its socket, or that you did not install the PROMs in the wrong sockets (U9 to the left, U10 to the right).

Replace the NIR-10 top cover. Make sure the RFI gasket finger material (if on your unit) adheres to the top cover, and makes good contact between the back and the top cover before tightening the screws.

Installation is now complete.

See reverse side for a description of the 4.0 upgrade's enhancements

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